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**NATIONAL ADVISORY COMMITTEE  
FOR AERONAUTICS**

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**LIST OF REPORTS  
WITH PRICES**

**EDITION JULY 1, 1927**



**UNITED STATES  
GOVERNMENT PRINTING OFFICE  
WASHINGTON  
1927**



# NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

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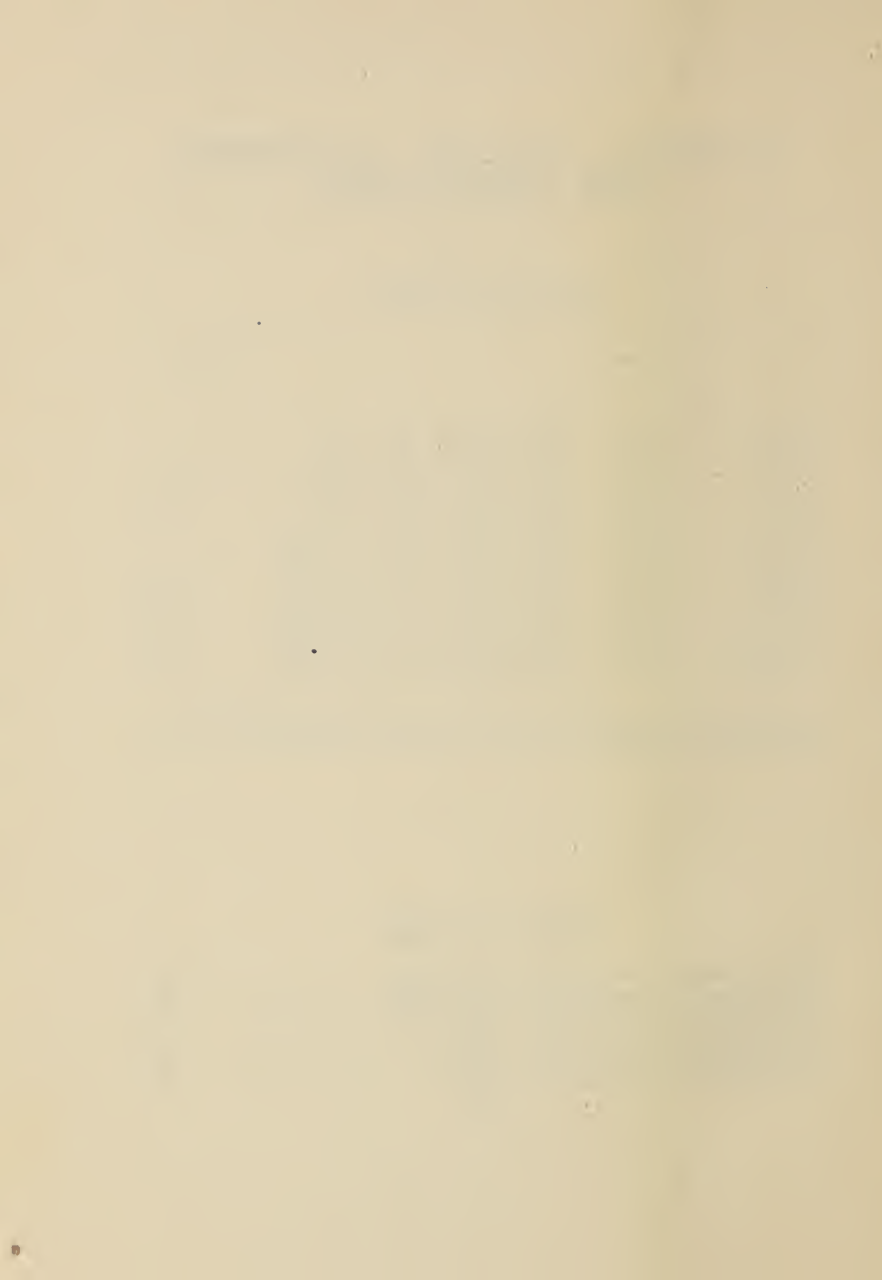
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# TECHNICAL REPORTS

## AERODYNAMICS

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253	Flow and Drag Formulas for Simple Quadrics. By A. F. Zahm. (Twelfth Annual, 1927)---	. 10

## AIRFOILS AND WING SECTIONS

<sup>4</sup> 18	Aerofoils and Aerofoil Structural Combinations. Combinations. By Lieut. Col. Edgar S. Gorrell and Maj. H. S. Martin. (Third Annual, 1917)-----	
<sup>3</sup> 28	An Introduction to the Study of the Laws of Air Resistance of Aerofoils. By George de Bothezat. (Fourth Annual, 1918)-----	
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121	The Minimum Induced Drag of Airfoils. By Max M. Munk. (Seventh Annual, 1921)-----	. 05

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3 46	A Study of Airplane Engine Tests. By V. R. Gage. (Fourth Annual, 1918)-----	
3 48	Carbureting Conditions Characteristic of Aircraft Engines. By P. S. Tice. (Fourth Annual, 1918)-----	
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	Part 3. Methods for Tests of Spark Plugs. By H. C. Dickinson.	
52	Temperatures in Spark Plugs Having Steel and Brass Shells. By C. S. Cragoe. (Fifth An- nual, 1919)-----	\$0. 05
2 53	Properties and Preparation of Ceramic Insula- tors for Spark Plugs. (Fifth Annual, 1919)-----	-----
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241	Electrical Characteristics of Spark Generators for Automotive Ignition. By R. B. Brode, D. W. Randolph, and F. B. Silsbee. (Twelfth Annual, 1926)-----	. 15
243	A Preliminary Study of Fuel Injection and Compression Ignition as Applied to an Aircraft Engine Cylinder. By Arthur W. Gardiner. (Twelfth Annual, 1926)-----	. 10
250	Description of the N. A. C. A. Universal Test Engine and Some Test Results. By Marsden Ware. (Twelfth Annual, 1926)-----	. 10
252	The Direct Measurement of Engine Power on an Airplane in Flight with a Hub Type Dynamometer. By W. D. Gove and M. W. Green. (Twelfth Annual, 1927)-----	. 10

<sup>2</sup> Out of print as a separate report. The annual volume containing this report is still available.

## ENGINES—Continued

No.	Title	Price
258	Some Factors Affecting the Reproducibility of Penetration and the Cut-Off of Oil Sprays for Fuel Injection Engines. By E. G. Beardsley. (Thirteenth Annual, 1927)-----	\$0. 05
261	Resistance and Cooling Power of Various Radiators. By R. H. Smith. (Thirteenth Annual, 1927)-----	. 10
262	Friction of Aviation Engines. By S. W. Sparrow and M. A. Thorne. (Thirteenth Annual, 1927)-----	. 10
263	Preliminary Flight Tests of the N. A. C. A. Roots Type Aircraft Engine Supercharger. By Arthur W. Gardiner and Elliott G. Reid. (Thirteenth Annual, 1927)-----	. 10
268	Factors in the Design of Centrifugal Type Injection Valves for Oil Engines. By W. F. Joachim and E. G. Beardsley. (Thirteenth Annual, 1927)-----	. 10

## FUELS

42	A New Process for the Production of Aircraft-engine Fuels. By Auguste Jean Paris, jr., and W. Francklyn Paris. (Fourth Annual, 1918)-----	\$0. 05
47	Power Characteristics of Fuels for Aircraft Engines. (Fourth Annual, 1918)----- Part 1. Power Characteristics of Aviation Gasoline. By E. W. Roberts. Part 2. Power Characteristics of Sumatra and Borneo Gasolines. By E. W. Roberts. Part 3. Power Characteristics of 20 per cent Benzol Mixtures. By E. W. Roberts.	. 10
89	Comparison of Alcogas Aviation Fuel with Export Aviation Gasoline. By V. R. Gage, S. W. Sparrow and D. R. Harper. (Sixth Annual, 1920)-----	. 05



## FUELS—Continued

No.	Title	Price
90	Comparison of Hector Fuel with Export Aviation Gasoline. By H. C. Dickinson, V. R. Gage and S. W. Sparrow. (Sixth Annual, 1920)-----	\$0. 05
232	Fuels for High-Compression Engines. By Stanwood W. Sparrow. (Eleventh Annual, 1925)-----	. 10

## GASES

40	The Ferrosilicon Process for the Generation of Hydrogen. By E. R. Weaver, W. M. Berry, V. L. Bohnson, and B. D. Gordon. (Fourth Annual, 1918)-----	\$0. 15
41	Testing of Balloon Gas. By Junius David Edwards. (Fourth Annual, 1918)-----	. 05

## HELICOPTERS

2 80	Stability of the Parachute and Helicopter. By H. Bateman. (Fifth Annual, 1919)-----	-----
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## INSTRUMENTS

1 2	Investigation of Pitot Tubes. (First Annual, 1915)----- Part 1. The Pitot Tube and Other Anemometers for Airplanes. By W. H. Herschel. Part 2. The Theory of the Pitot and Venturi Tubes. By E. Buckingham.	-----
1 8	General Specifications Covering Requirements of Aeronautic Instruments. By the National Advisory Committee for Aeronautics. (Second Annual, 1916)-----	-----

<sup>1</sup> Out of print. Annual volume available for reference or loan in the Office of Aeronautical Intelligence, National Advisory Committee for Aeronautics, Washington, D. C., and in the libraries of large cities.

<sup>2</sup> Out of print as a separate report. The annual volume containing this report is still available.

## INSTRUMENTS—Continued

No.	Title	Price
31	Development of Air Speed Nozzles. By A. F. Zahm. (Fourth Annual, 1918)-----	\$0. 10
32	The Airplane Tensiometer. By L. J. Larson. (Fourth Annual, 1918)-----	. 05
50	Calculation of Low Pressure Indicator Diagrams. By E. C. Kemble. (Fourth Annual, 1918)-----	. 05
81	Comparison of U. S. and British Standard Pitot-Static Tubes. By A. F. Zahm and R. H. Smith. (Fifth Annual, 1919)-----	. 05
94	The Efficiency of Small Bearings in Instruments of the Type Used in Aircraft. By F. H. Norton. (Sixth Annual, 1920)-----	. 05
99	Acceleration in Flight. By F. H. Norton and E. T. Allen. (Sixth Annual, 1920)-----	. 10
100	Accelerometer Design. By F. H. Norton and Edward P. Warner. (Sixth Annual, 1920)---	. 05
107	A High-Speed Engine Pressure Indicator of the Balanced Diaphragm Type. By H. C. Dickinson and F. B. Newell. (Sixth Annual, 1920)-----	. 05
110	The Altitude Effect on Air Speed Indicators. By M. D. Hersey, F. L. Hunt, and H. N. Eaton. (Sixth Annual, 1920)-----	. 10
125	Aeronautic Instruments: Section I—General Classification of Instruments and Problems Including Bibliography. By Bureau of Standards. (Seventh Annual, 1921)-----	. 05
126	Aeronautic Instruments: Section II—Altitude Instruments. By Bureau of Standards (Seventh Annual, 1921)-----	. 15
	Part 1. Altimeters and Barographs.	
	Part 2. Precision Altimeter Design.	
	Part 3. Staticscopes and Rate-of-climb Indicators.	
	Part 4. Aerographs and Strut Thermometers.	



## INSTRUMENTS—Continued

No.	Title	Price
127	Aeronautic Instruments: Section III—Aircraft Speed Instruments. By Bureau of Standards. (Seventh Annual, 1921)----- Part 1. Air Speed Indicators. Part 2. Testing of Air Speed Meters. Part 3. Principles of Ground-Speed Instruments.	\$0. 10
128	Aeronautic Instruments: Section IV—Direction Instruments. By Bureau of Standards. (Seventh Annual, 1921)----- Part 1. Inclinometers and Banking Indicators. Part 2. The Testing and Use of Magnetic Compasses for Airplanes. Part 3. Aircraft Compasses—Description and Classification. Part 4. Turn Indicators.	. 15
129	Aeronautic Instruments: Section V—Powerplant Instruments. By Bureau of Standards. (Seventh Annual, 1921)----- Part 1. Airplane Tachometers. Part 2. Testing of Airplane Tachometers. Part 3. Thermometers for Aircraft Engines. Part 4. Air-pressure and Oil-pressure Gages. Part 5. Gasoline-depth Gages and Flow Meters for Aircraft.	. 15
130	Aeronautic Instruments: Section VI—Oxygen Instruments. By Bureau of Standards. (Seventh Annual, 1921)-----	. 10
131	Aeronautic Instruments: Section VII—Aerial Navigation Instruments. By Bureau of Standards. (Seventh Annual, 1921)-----	. 10
132	Aeronautic Instruments: Section VIII—Recent Developments and Outstanding Problems. By Bureau of Standards. (Seventh Annual, 1921)-----	. 05
156	The Altitude Effect of Air Speed Indicators—II. By H. N. Eaton and W. A. McNair. (Eighth Annual, 1922)-----	. 10
160	An Airship Slide Rule. By E. R. Weaver and S. F. Pickering. (Ninth Annual, 1923)-----	. 05

## INSTRUMENTS—Continued

No.	Title	Price
165	Diaphragms for Aeronautic Instruments. By M. D. Hersey (Ninth Annual, 1923)-----	\$0. 10
166	The Aerodynamic Plane Table. By A. F. Zahm. (Ninth Annual, 1923)-----	. 05
176	A Constant-pressure Bomb. By F. W. Stevens. (Ninth Annual, 1923)-----	. 05
<sup>1</sup> 198	Astronomical Methods in Aerial Navigation. By K. Hilding Beij. (Tenth Annual, 1924)-----	-----
199	Interference Tests on an N. A. C. A. Pitot Tube. By Elliott G. Reid. (Tenth Annual, 1924)---	. 05
206	Nonmetallic Diaphragms for Instruments. By H. N. Eaton and C. T. Buckingham. (Tenth Annual, 1924)-----	. 10
264	Differential Pressures on a Pitot-Venturi and a Pitot-Static Nozzle Over 360° Pitch and Yaw. By R. M. Bear. (Thirteenth Annual, 1927)---	. 05

## MATERIALS

<sup>2</sup> 5	Relative Worth of Improvements on Fabrics. By the Goodyear Tire and Rubber Co. (First Annual, 1915)-----	-----
<sup>2</sup> 6	Investigations of Balloon and Airplane Fabrics. (First Annual, 1915)-----	-----
	Part 1. Balloon and Airplane Fabrics. By Willis A. Gibbons and Omar H. Smith.	
	Part 2. Skin Friction of Various Surfaces in Air. By Willis A. Gibbons.	
<sup>4</sup> 16	The Stretching of the Fabric and the Deformation of the Envelope in Nonrigid Balloons (Third Annual, 1917)-----	-----
	Part 1. The Stretching of the Fabric and the Shape of the Envelope. By Rudolf Haas.	

<sup>1</sup> Out of print as a separate report. The annual volume containing this report is still available.

<sup>2</sup> Out of print. Annual volume available for reference or loan in the Office of Aeronautical Intelligence, National Advisory Committee for Aeronautics, Washington, D. C., and in the libraries of large cities.

<sup>4</sup> Not issued as a separate report. The annual volume containing this report is still available.

## MATERIALS—Continued

No.	Title	Price
4 16	The Stretching of the Fabric, etc.—Continued. Part 2. The Deformation of the Envelope of the Siemens-Schuckert Airships. By Alexander Dietzius.	
4 22	Fabrics for Aeronautic Construction. By Sub- committee on Standardization and Investi- gation of Materials. (Third Annual 1917)----- Part 1. Cotton Airplane Fabrics. Part 2. Balloon Fabrics.	
33	Self-luminous Materials. By N. E. Dorsey. (Fourth Annual, 1918)-----	\$0. 05
34	Aluminum and its Light Alloys. By Paul D. Merica. (Fourth Annual, 1918)-----	. 05
36	The Structure of Airplane Fabrics. By E. Dean Walen. (Fourth Annual, 1918)-----	. 10
37	Fabric Fastenings. By E. Dean Walen and R. T. Fisher. (Fourth Annual, 1918)-----	. 05
3 38	Airplane Dopes and Doping. By W. H. Smith. (Fourth Annual, 1918)-----	
39	The Testing of Balloon Fabrics. By Junius David Edwards and Irwin L. Moore (Fourth Annual, 1918)----- Part 1. Characteristic Exposure Tests of Balloon Fabrics. Part 2. Use of Ultra-violet Light for Test- ing Balloon Fabrics.	. 05
65	The Kiln Drying of Woods for Airplanes. By Harry D. Tieman. (Fifth Annual, 1919)-----	. 10
2 66	Glues Used in Airplane Parts. By S. W. Allen and T. R. Truax. (Fifth Annual, 1919)-----	
67	Supplies and Production of Aircraft Woods. By W. N. Sparhawk. (Fifth Annual, 1919)---	. 15
68	The Effect of Kiln Drying on the Strength of Airplane Woods. By T. R. C. Wilson. (Fifth Annual, 1919)-----	. 15
3 84	Data on the Design of Plywood for Aircraft. By Armin Elmendorf. (Sixth Annual, 1920)-----	

<sup>2</sup> Out of print as a separate report. The annual volume containing this report is still available.

<sup>3</sup> Out of print. Available as a separate report for reference or loan in the Office of Aeronautical Intelligence, National Advisory Committee for Aeronautics.

<sup>4</sup> Not issued as a separate report. The annual volume containing this report is still available.

## MATERIALS—Continued

No.	Title	Price
<sup>3</sup> 85	Moisture Resistant Finishes for Airplane Woods. By M. E. Dunlap. (Sixth Annual, 1920)-----	-----
145	Internal Stresses in Laminated Construction. By A. L. Heim, A. C. Knauss, and Louis Seutter. (Eighth Annual, 1922)-----	\$0. 10
248	The Corrosion of Magnesium and of the Magnesium Aluminum Alloys Containing Manganese. By J. A. Boyer. (Twelfth Annual, 1926)-----	. 20

## METEOROLOGY

<sup>1</sup> 4	Preliminary Report on the Problem of the Atmosphere in Relation to Aeronautics. By Prof. Charles F. Marvin. (First Annual, 1915)-----	-----
13	Meteorology and Aeronautics. By Wm. R. Blair. (Third Annual, 1917)-----	\$0. 10
	Part 1. Physical Properties and Dynamics of the Atmosphere.	
	Part 2. Topographic and Climatic Factors in Relation to Aeronautics.	
	Part 3. Current Meteorology and Its Use.	
147	Standard Atmosphere. By Willis Ray Gregg. (Eighth Annual, 1922)-----	. 05
216	The Reduction of Airplane Flight-test Data to Standard Atmosphere Conditions. By Walter S. Diehl and E. P. Lesley. (Eleventh Annual, 1925)-----	. 10
218	Standard Atmosphere—Tables and Data. By Walter S. Diehl. (Eleventh Annual, 1925)-----	. 10
245	Meteorological Conditions along Airways. By W. R. Gregg. (Twelfth Annual, 1926)-----	. 10
246	Tables for Calibrating Altimeters and Computing Altitudes Based on the Standard Atmosphere. By W. G. Brombacher. (Twelfth Annual, 1926)-----	. 10

<sup>1</sup> Out of print. Annual volume available for reference or loan in the Office of Aeronautical Intelligence, National Advisory Committee for Aeronautics, Washington, D. C., and in the libraries of large cities.

<sup>3</sup> Out of print. Available as a separate report for reference or loan in the Office of Aeronautical Intelligence, National Advisory Committee for Aeronautics.

## NOMENCLATURE

No.	Title	Price
<sup>3</sup> 9	Nomenclature for Aeronautics. By the National Advisory Committee for Aeronautics. (Second Annual, 1916)-----	
<sup>2</sup> 15	Nomenclature for Aeronautics. By the National Advisory Committee for Aeronautics. (Third Annual, 1917)-----	
<sup>3</sup> 25	Nomenclature for Aeronautics. By the National Advisory Committee for Aeronautics. (Fourth Annual, 1918)-----	
91	Nomenclature for Aeronautics. By the National Advisory Committee for Aeronautics. (Sixth Annual, 1920)-----	\$0. 15
<sup>3</sup> 157	Nomenclature for Aeronautics. By the National Advisory Committee for Aeronautics. (Eighth Annual, 1922)-----	
240	Nomenclature for Aeronautics. By the National Advisory Committee for Aeronautics. (Twelfth Annual, 1926)-----	. 20
NOTE.—Reports 9, 15, 25, 91, 157 are obsolete.		

## PARACHUTES

<sup>2</sup> 80	Stability of the Parachute and Helicopter. By H. Bateman. (Fifth Annual, 1919)-----	
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## PROPELLERS

<sup>2</sup> 14	Experimental Research on Air Propellers. By Wm. F. Durand. (Third Annual, 1917)----- Part 1. The Aerodynamic Laboratory at Leland Stanford Junior University and the Equipment Installed with Special Reference to Tests on Air Propellers. Part 2. Tests on 48 Model Forms of Air Propellers, with Analysis and Discussion of Results and Presentation of the Same in Graphic Form.	
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<sup>2</sup> Out of print as a separate report. The annual volume containing this report is still available.

<sup>3</sup> Out of print. Available as a separate report for reference or loan in the Office of Aeronautical Intelligence, National Advisory Committee for Aeronautics.

## PROPELLERS—Continued

No.	Title	Price
<sup>2</sup> 14	Experimental Research on Air Propellers—Con. Part 3. A Brief Discussion of the Law of Similitude as Affecting the Relation Between the Results Derived from Model Forms and Those to be Anticipated from Full-sized Forms.	
<sup>2</sup> 19	Periodic Stresses in Gyroscopic Bodies—with Applications to Air Screws. By A. F. Zahm. (Third Annual, 1917)----- Part 1. The Gyroscopic Particle. Part 2. The Gyroscopic Three-Dimensional Body.	
29	The General Theory of Blade Screws. By George de Bothezat. (Fourth Annual, 1918)	\$0. 20
30	Experimental Research on Air Propellers—II. By Wm. F. Durand and E. P. Lesley. (Fourth Annual, 1918)-----	. 15
64	Experimental Research on Air Propellers—III. By Wm. F. Durand and E. P. Lesley. (Fifth Annual, 1919)-----	. 10
71	Slip-stream Corrections in Performance Com- putation. By Edward P. Warner. (Fifth Annual, 1919)-----	. 05
109	Experimental Research on Air Propellers—IV. By Wm. F. Durand and E. P. Lesley. (Sixth Annual, 1920)-----	. 05
113	Tests on Air Propellers in Yaw. By Wm. F. Durand and E. P. Lesley. (Seventh Annual, 1921)-----	. 10
141	Experimental Research on Air Propellers—V. By Wm. F. Durand and E. P. Lesley. (Eighth Annual, 1922)-----	. 15
168	The General Efficiency Curve for Air Propellers. By Walter S. Diehl. (Ninth Annual, 1923)---	. 05
175	Analysis of W. F. Durand's and E. P. Lesley's Propeller Tests. By Max M. Munk. (Ninth Annual, 1923)-----	. 05
177	The Effect of Slip-stream Obstructions on Air Propellers. By E. P. Lesley and B. M. Woods. (Ninth Annual, 1923)-----	. 10

<sup>2</sup> Out of print as a separate report. The annual volume containing this report is still available.



## PROPELLERS—Continued

No.	Title	Price
178	Relative Efficiency of Direct and Geared Drive Propellers. By Walter S. Diehl. (Ninth Annual, 1923)-----	\$0. 05
183	The Analysis of Free-flight Propeller Tests and Its Application to Design. By Max M. Munk. (Ninth Annual, 1923)-----	. 05
186	Application of Propeller-test Data to Design and Performance Calculations. By Walter S. Diehl. (Tenth Annual, 1924)-----	. 05
196	Comparison of Model Propeller Tests with the Airfoil Theory. By W. F. Durand and E. P. Lesley. (Tenth Annual, 1924)-----	. 10
220	Comparison of Tests on Airplane Propeller in Flight with Wind-tunnel Model Tests on Similar Forms. By W. F. Durand and E. P. Lesley. (Eleventh Annual, 1925)-----	. 15
235	Interaction between Air Propellers and Airplane Structures. By W. F. Durand. (Twelfth Annual, 1926)-----	. 10
237	Tests on Thirteen Navy Type Model Propellers. By W. F. Durand. (Twelfth Annual, 1926)---	. 10
259	Characteristics of Propeller Sections Tested in the Variable Density Wind Tunnel. By Eastman N. Jacobs. (Thirteenth Annual, 1927)-----	. 10

## SEAPLANES

209	Characteristics of a Single-float Seaplane During Take-off. By J. W. Crowley, jr., and K. M. Ronan. (Tenth Annual, 1924)-----	\$0. 05
226	Characteristics of a Boat-type Seaplane During Take-off. By J. W. Crowley, jr., and K. M. Ronan. (Eleventh Annual, 1925)-----	. 05
242	Characteristics of a Twin-Float Seaplane During Take-off. By John W. Crowley, Jr., and K. M. Ronan. (Twelfth Annual, 1926)-----	. 10

## STABILITY AND CONTROL

No.	Title	Price
<sup>1</sup> 1	Report on Behavior of Airplanes in Gusts. (First Annual, 1915)-----	
	Part 1. Experimental Analysis of Inherent Longitudinal Stability for a Typical Biplane. By J. C. Hunsaker.	
	Part 2. Theory of an Airplane Encountering Gusts. By E. B. Wilson.	
<sup>4</sup> 17	An Investigation of the Elements which Contribute to Statical and Dynamical Stability, and of the Effects of Variation in those Elements. By Alexander Klemin, Edward P. Warner, and George M. Denkinger. (Third Annual, 1917)-----	
<sup>4</sup> 21	Theory of an Airplane Encountering Gusts—II. By E. B. Wilson. (Third Annual, 1917)-----	
<sup>3</sup> 26	The Variation of Yawing Moment Due to Rolling. By E. B. Wilson. (Fourth Annual, 1918)-----	
<sup>3</sup> 27	Theory of an Airplane Encountering Gusts—III. By E. B. Wilson. (Fourth Annual, 1918)-----	
95	Diagrams of Airplane Stability. By H. Bateman. (Sixth Annual, 1920)-----	\$0. 10
<sup>3</sup> 96	Statical Longitudinal Stability of Airplanes. By Edward P. Warner. (Sixth Annual, 1920)-----	
112	Control in Circling Flight. By F. H. Norton and E. T. Allen. (Seventh Annual, 1921)-----	. 10
<sup>3</sup> 120	Practical Stability and Controllability of Airplanes. By F. H. Norton. (Seventh Annual, 1921)-----	. 05
153	Controllability and Maneuverability of Airplanes. By F. H. Norton and W. G. Brown. (Eighth Annual, 1922)-----	. 05
172	Dynamic Stability as Affected by the Longitudinal Moment of Inertia. By Edwin B. Wilson. (Ninth Annual, 1923)-----	. 05

<sup>1</sup> Out of print. Annual volume available for reference or loan in the Office of Aeronautical Intelligence, National Advisory Committee for Aeronautics, Washington, D. C., and in the libraries of large cities.

<sup>3</sup> Out of print. Available as a separate report for reference or loan in the Office of Aeronautical Intelligence, National Advisory Committee for Aeronautics.

<sup>4</sup> Not issued as a separate report. The annual volume containing this report is still available.



## STRENGTH OF CONSTRUCTION

No.	Title	Price
<sup>1</sup> 3	Report on the Investigations of Aviation Wires and Cables, their Fastenings and Terminal Connections. By John A. Roebling's Sons Co. (First Annual, 1915)-----	-----
<sup>3</sup> 35	The Strength of One-piece, Solid, Built-up, and Laminated Wood Airplane Wing Beams. By John H. Nelson. (Fourth Annual, 1918)-----	-----
76	Analysis of Fuselage Stresses. By Edward P. Warner and Roy G. Miller. (Fifth Annual, 1919)-----	\$0. 05
<sup>2</sup> 82	Airplane Stress Analysis. By A. F. Zahm. (Fifth Annual, 1919)-----	-----
<sup>3</sup> 92	Analysis of Wing Truss Stresses. By Edward P. Warner and Roy G. Miller. (Sixth Annual, 1920)-----	-----
104	Torsion of Wing Trusses at Diving Speeds. By Roy G. Miller. (Sixth Annual, 1920)---	. 05
137	Point Drag and Total Drag of Navy Struts No. 1 Modified. By A. F. Zahm, R. H. Smith, and G. C. Hill. (Eighth Annual, 1922)-----	. 05
140	Lift and Drag Effects on Wing Tip-rake. By A. F. Zahm, R. M. Bear, and G. C. Hill. (Eighth Annual, 1922)-----	. 05
143	Analysis of Stresses in German Airplanes. By Wilhelm Hoff. (Eighth Annual, 1922)-----	. 15
161	The Distribution of Lift Over Wing Tips and Ailerons. By David L. Bacon. (Ninth Annual, 1923)-----	. 10
<sup>2</sup> 180	The Influence of the Form of a Wooden Beam on Its Stiffness and Strength—I: Deflection of Beams with Special Reference to Shear Deformations. By J. A. Newlin and G. W. Trayer. (Ninth Annual, 1923)-----	-----

<sup>1</sup> Out of print. Annual volume available for reference or loan in the Office of Aeronautical Intelligence, National Advisory Committee for Aeronautics, Washington, D. C., and in the libraries of large cities.

<sup>2</sup> Out of print as a separate report. The annual volume containing this report is still available.

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## STRENGTH OF CONSTRUCTION—Continued

No.	Title	Price
<sup>2</sup> 181	The Influence of the Form of a Wooden Beam on Its Stiffness and Strength—II: Form Factors of Beams Subjected to Transverse Loading Only. By J. A. Newlin and G. W. Trayer. (Ninth Annual, 1923)-----	-----
<sup>2</sup> 188	The Influence of the Form of a Wooden Beam on Its Stiffness and Strength—III: Stresses in Wood Members Subjected to Combined Column and Beam Action. By J. A. Newlin and G. W. Trayer. (Tenth Annual, 1924)-----	-----
214	Wing Spar Stress Charts and Wing Truss Proportions. By Edward P. Warner. (Eleventh Annual, 1925)-----	\$0. 10
251	Approximations for Column Effect in Airplane Wing Spars. By Edward P. Warner and Mac Short. (Twelfth Annual, 1927)-----	. 10

## WIND TUNNELS AND LABORATORIES

44	The Altitude Laboratory for the Testing of Aircraft Engines. By H. C. Dickinson and H. G. Boutell. (Fourth Annual, 1918)-----	\$0. 10
72	Wind Tunnel Balances. By Edward P. Warner and F. H. Norton. (Fifth Annual, 1919)-----	. 10
<sup>2</sup> 73	The Design of Wind Tunnels and Wind Tunnel Propellers. By Edward P. Warner and F. H. Norton. (Fifth Annual, 1919)-----	-----
<sup>2</sup> 74	Construction of Models for Tests in Wind Tunnels. By F. H. Norton. (Fifth Annual, 1919)-----	-----
98	Design of Wind Tunnels and Wind Tunnel Propellers—II. By F. H. Norton and Edward P. Warner. (Sixth Annual, 1920)-----	. 10
146	The Six-component Wind Balance. By A. F. Zahm. (Eighth Annual, 1922)-----	. 05
195	Standardization Tests of N. A. C. A. No. 1 Wind Tunnel. By Elliott G. Reid. (Tenth Annual, 1924)-----	. 10

<sup>2</sup> Out of print as a separate report. The annual volume containing this report is still available.

## WIND TUNNELS AND LABORATORIES—Continued

No.	Title	Price
227	The Variable-Density Wind Tunnel of the National Advisory Committee for Aeronautics. By Max M. Munk and Elton W. Miller. (Eleventh Annual, 1925)-----	\$0. 10
231	Investigation of Turbulence in Wind Tunnels by a Study of the Flow About Cylinders. By H. L. Dryden and R. H. Heald. (Eleventh Annual, 1925)-----	





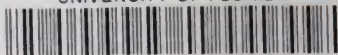






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